

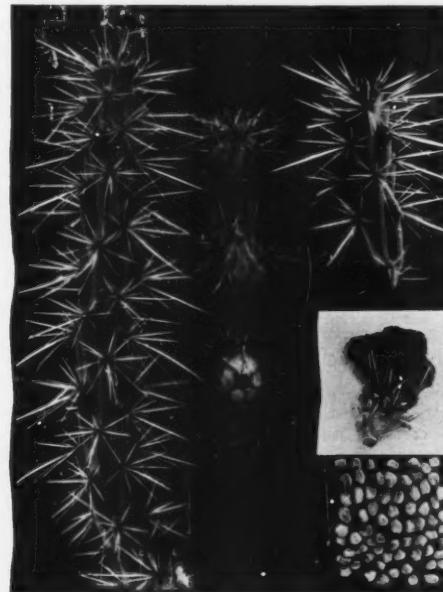
CACTUS AND SUCCULENT JOURNAL

Of the Cactus And Succulent Society
Of America

Vol. IX

SEPTEMBER, 1937

No. 3



Material from the type plant of *Opuntia acanthocarpa* var. *ramosa*. The flower has been dried and pressed. Approximately half natural size.



CACTUS AND SUCCULENT JOURNAL

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September 17th to October 3rd

Annual Cactus and Succulent Show on the grounds and as part of the Los Angeles County Fair, Pomona. Many classes for professionals, clubs, amateurs and juniors. Many cash prizes. For schedules and entry blanks write to Howard E. Gates, Anaheim, Calif. or Wm. Taylor Marshall, 327 North Avenue 61, Los Angeles, Calif.

CHICAGO EXHIBIT

The photograph on page 45 shows a Cactus Garden exhibit at the Chicago Flower Show, by members of the Chicago Cactus Society. This was the first exhibit of the Chicago Cactus Society at this annual show, and it was a decided success.

We had a representative collection of American cacti chiefly from Texas and Arizona, among them being six *Carnegiea gigantea* 4 to 6 feet tall, 2 large *Ferocactus wislizeni*, a fine specimen of Grizzly Bear Cactus, *O. erinacea*; an unusually large specimen of *Neomammillaria meiacantha* loaded with fruits, several fine clusters of *Echinocereus rosei*, some of which bloomed during the exhibit. The only other one which bloomed was *Echinomastus intertextus*. A number of others were in bud such as *Echinocereus reichenbachii*, *E. dasycanthus*, *E. engelmannii*, *E. polyacanthus*, *E. viridiflorus*, and *E. octacanthus*. Other fine specimens although not so conspicuous were *Peniocereus greggii*, and *Wilocoxia poselgeri*. A *Coryphantha deserti* which the collector appropriately called Silver Fox Cactus, was a striking plant.

The show this year broke previous records of attendance, amounting to 234,000. The more important species were correctly labeled, which

seemed to be appreciated by the public. In addition to the cacti we had a large collection of other succulent plants including Agaves, Aloes, Euphorbias, Crassulas, Kalanchoes, etc., which were grouped in the foreground of the exhibit. These plants were loaned to us by the Garfield Park Conservatory. This institution was the recipient of most of the cacti after the exhibit.

R. T. VAN TRESS

TEXAS CACTI—By Ellen Schulz and Robert Runyan. 180 pages with complete illustrations of the native cacti of Texas. One of the most complete and valuable books on cacti. A few more copies have been secured, but the supply is nearly exhausted. Order now while the price is \$3.00. Postage 15c.

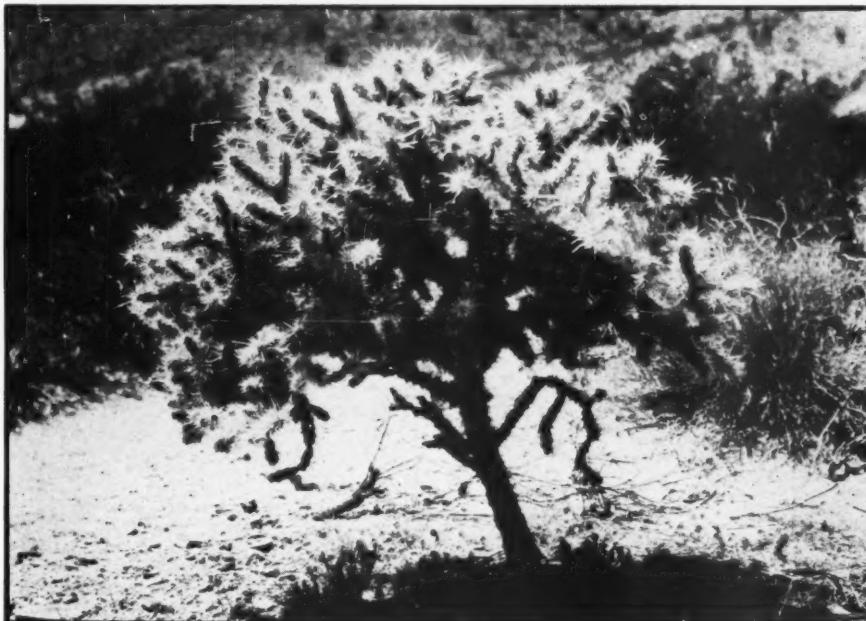
Society Member, Jack Whitehead, is not only a cactus enthusiast but is also interested in ferns. "Some Arizona Ferns Collected in Sonora, Mexico" is the title of a recent paper by Mr. Whitehead written for the AMERICAN FERN JOURNAL.

CORRECTION: The author of "Ought Cacti to be Given Fertilizer" which appeared in the May 1937 Cactus and Succulent Journal, is Dr. Franz Buxbaum, Furstenfeld, Styria Austria.

Will pay \$10.00 for Volume I, Cactus and Succulent Journal. Ervin Strong, 315 W. Erna, La Habra, Calif.

Binding Cactus Journals Volume VIII

Remove any sections of Britton and Rose and send your JOURNALS by mail (Parcels post—not first class) or Express to Cactus Society, 319 E. Green St., Pasadena, Calif. Back volumes of the JOURNAL may be bound at the same time. Please send \$1.50 for each volume and add 35c for each missing copy. Send to the above address not later than Oct. 1st. No orders can be received after that date.



Opuntia echinocarpa, about 3-1/2 feet high, near Hope,
Yuma County, Arizona.

Comments on the Dry-fruited Cylindric Opuntias of Arizona

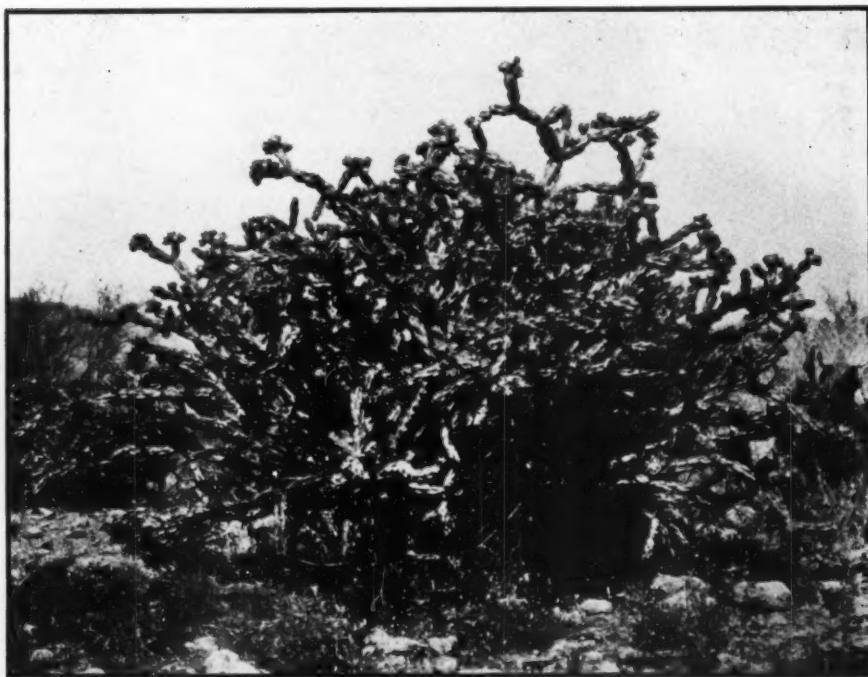
ROBERT H. PEEBLES, U. S. Department of Agriculture

Some confusion has existed in respect to Arizona forms of *Opuntia echinocarpa* Engelm. & Bigel. and *O. acanthocarpa* Engelm. & Bigel. Griffiths (1, p. 84-85) wrote of "*echinocarpa*" reaching "its maximum development of 6 or 7 feet high upon the deserts of Salt River Valley and its tributaries". He probably referred to the plant described herein as *Opuntia acanthocarpa* var. *ramosa*, as the extension of true *echinocarpa* into Maricopa County is limited to scattered individuals in the northwestern part of the County. Stockwell & Breazeale (2, p. 62) also probably had var. *ramosa* in mind when they gave the eastern limit of "*echinocarpa*" as Florence, which is in Pinal County, and described it as "a low, wide-spreading form with short, woody trunk which closely resembles *O. acanthocarpa* except in being more slender and having a yellowish color". Similarly, Thackery & Leding (3, p. 413) gave an interesting account of the

use of "*echinocarpa*" as a food plant of the Pima Indians living at Sacaton, Pinal County. On the other hand, Britton & Rose (4, p. 56) and Baxter (5, p. 9) used MacDougal's photograph of *O. acanthocarpa* var. *ramosa* to illustrate *O. acanthocarpa*.

Another Arizona representative of series *Echinocarpa* is *Opuntia thornberi* Thornber & Bonker. The first published account of this species is in Thornber & Bonker (6, p. 133-134, 148), which, therefore, must be accepted as the original reference.

The writer has had the good fortune to collect and photograph these species in the vicinity of their respective type localities. Although the exact locality of the type collection is given only for *O. acanthocarpa*, in each instance numerous individuals which agreed satisfactorily with the original description were found in the general vicinity of the indicated locality. The following



Plant of *Opuntia acanthocarpa* var. *ramosa* with exceptionally numerous branches, 5 feet high, near Sacaton, Arizona, at 1600 feet elevation.

observations, together with the photographs, are presented in an endeavor to clarify our understanding of the dry-fruited cylindric Opuntias (series *Echinocarpe*) of Arizona.

Opuntia echinocarpa was first collected in the Colorado Valley, near the mouth of Williams River. Plants like the one in the photograph are common in northern Yuma County from Salome to Parker and from the Harcuvar Mts. to the Williams River. They correspond with the original description and the many-spined fruits closely resemble the illustration in Engelmann & Bigelow (7, pl. XVIII, figs. 9, 10). The species, in northern Yuma County, is characterized by the distinct trunk, densely branched, compact crown and the short ultimate joints on which the tubercles are scarcely twice as long as wide. Well grown plants are usually 3 or 4 feet high, occasionally a foot or so higher.

Opuntia acanthocarpa was collected originally on the mountains of Cactus Pass, about 500 miles west of Santa Fe. As nearly as can be ascertained from Barnes (8), this would be the Cottonwood Range, about 30 miles east of Kingman, in central Mohave County. Plants in this

vicinity are very different from *O. echinocarpa* in their large size, open branching habit and longer joints on which the tubercles are long and relatively narrow. Ordinarily the plants are from 5 to 8 feet high, but exceptional individuals 15 feet high grow in the hills east of the Hualpai Mts. The plant shown in the photograph is representative of the species as it grows in central Mohave County. What appears to be true *acanthocarpa* is common in Yuma County and in Maricopa County, particularly at Wickenburg and Gila Bend.

Opuntia thornberi is really distinguished from *O. acanthocarpa* by its more numerous branches, which are not inclined to be divaricate or ascending, and by the fewer and shorter spines. The good line drawing which accompanies the non-technical description clearly shows that the spines are longer than the "one-quarter inch or less" specified in the text (6, p. 148). Like many other Opuntias, *thornberi* exhibits two distinct floral color-forms, bronze-yellow and deep red. In the vicinity of Superior, Pinal County, the plants are almost exclusively yellow-flowered, whereas red-flowered individu-

als predominate in the region east of Coolidge Dam, in Graham County. The species intergrades with *O. acanthocarpa* var. *ramosa*, apparently hybridizing with that variety where their ranges overlap, e. g., near Florence Junction, Pinal County. *Opuntia thornberi* occurs in the hills, at approximate elevations of 1,500 to 3,000 feet, in Maricopa, Pinal, Pima and Graham Counties. The type locality is indicated as "arid, sandy, or gravelly and rocky soils along the foothills and broad desert mesas in south central Arizona."

Opuntia acanthocarpa Engelm. & Bigel.

var. *ramosa* var. nov.

Planta dense ramosa, articulis tenuioribus, saepe brevioribus.

Plant branching close to the ground, 1 meter high, the crown rounded, rather dense; ultimate joints gray-green, conspicuously tuberculate, 5 to 30 cm. long, 17 to 20 mm. in diameter, the tuber-

cles 15 to 25 mm. long, 5 mm. wide, 5 mm. high; spines pallid or reddish, loosely sheathed, 6 to 12 in number, up to 33 mm. long, the sheaths stramineous; flowers red, 6 cm. wide; fruit thin-walled, dry at maturity, obovate, 20 to 30 mm. long, bearing about 12 areoles on upper half or two-thirds, naked toward base; spines about 10, stramineous, sheathed, up to 20 mm. long; seeds angled, 4 mm. wide.

Type, A.R. Leding SF 2, Sacaton, Pinal County, Ariz., 1920, cultivated at Sacaton and represented by material in the U. S. National Herbarium.

This variety resembles *Opuntia thornberi* in habit, but is much more spiny. Individual plants vary from the densely branched, rather short-jointed form shown in the accompanying photograph to higher, open plants, with more or less ascending branches and longer joints, which approach typical *acanthocarpa*. Plants similar to the one shown in MacDougal's Photograph (4, p. 56) are abundant in Pinal and Pima Counties. Although the extreme form illustrated by our



Opuntia acanthocarpa, 7 feet high, near Kingman, Mohave County, Arizona, at 2950 feet elevation.

photograph somewhat resembles *O. echinocarpa* in appearance, the variation from this form is always toward *O. acanthocarpa*, and the tubercles are always high and relatively narrow. The fruits of all the variants are much like the type of *acanthocarpa* as illustrated by Engelmann & Bigelow (7, pl. XVIII, fig. 1). Var. *ramosa* exhibits color forms ranging from yellow tinged with red to red, but in most of the plants the flowers are variegated red and yellow.

CITATIONS

- (1) Griffiths, D., Ann. Rep. Mo. Bot. Gard. 1909.
- (2) Stockwell, W. P., and L. Breazeale, Univ. Ariz. Bull. IV, No. 3. 1933.
- (3) Thackery, F. A., and A. R. Leding, Journ. Hered. XX, No. 9. 1929.
- (4) Britton, N. L., and J. N. Rose, The Cactaceae I. 1919.
- (5) Baxter, E. M., California Cactus. 1935.
- (6) Thornber, J. J., and F. Bonker, The Fantastic Clan. The MacMillan Co. 1932.
- (7) Engelmann, G., and J. M. Bigelow, in Rep. Expl. & Surv. Miss R. Pac. IV. 1856.
- (8) Barnes, W. C., Univ. Ariz. Gen. Bull. 2. 1935.

KEY TO THE ARIZONA SPECIES OF THE ECHINOCARPAE SERIES.

Ultimate joints short (mostly less than 10 cm. long); tubercles about twice as long as wide, usually not strongly compressed laterally; plants mostly with a distinct trunk and very dense crown; flowers greenish-yellow *O. echinocarpa*

Ultimate joints long (mostly 15 to 30 cm.); tubercles twice or thrice longer than wide, conspicuously compressed laterally; trunk usually short; flowers in various combinations of red and yellow.

 Joints strongly armed; spines numerous, exceeding 2.5 cm., conspicuously sheathed.

 Crown open; younger branches ascending and divaricate, forming acute angles with each other; joints at least 2.5 cm. in diameter *O. acanthocarpa*

 Crown usually densely branched; branches forming various angles; joints mostly less than 2.5 cm. in diameter; plants lower and more spreading in habit (approaches typical *acanthocarpa* in the more erect and openly branched forms) *O. acanthocarpa* var. *ramosa*

 Joints weakly armed, appearing almost spineless from a distance; spines less than 2.5 cm. long, the sheaths not conspicuous; crown usually densely branched *O. thornberi*



Opuntia thornberi, 5 feet high, near Superior, Arizona,
at 2500 feet elevation.



Copyright Dinter

Euphorbia halleri Dtr.

This is the finest published photograph of a new species of the shrub type of Euphorbia. This plant was discovered by Prof. Kurt Dinter in the coast-belt desert near Rossing, 40 km. east of Swakopmund in the northern section of South West Africa. The branches show those of a female plant possessing flowers, fruit and leaves. The color of the entire plant is bluish-white, and from the general appearance it is closely allied to *E. bergeriana* Dtr. Not all collectors of the Euphorbias fancy the shrub or stems, but those that do will undoubtedly find this a favorite. This species has not yet been introduced into the United States.

G. A. FRICK

HUMMEL'S EXOTIC GARDENS Offers

Prago-chamaecereus Edward Jr. a beautiful new introduction. Free flowering, has stood eighteen degrees of frost, hardy on its own roots, flowers lasting three days or more, opening a bright apricot, changing to salmon and nearly yellow, two and a half inches across. Flower structure and colors never before obtained. Rooted plants \$1.00

Prago-chamaecereus Miss Marquette Belle, similar to the one above but with delicately ruffled petals \$5.00

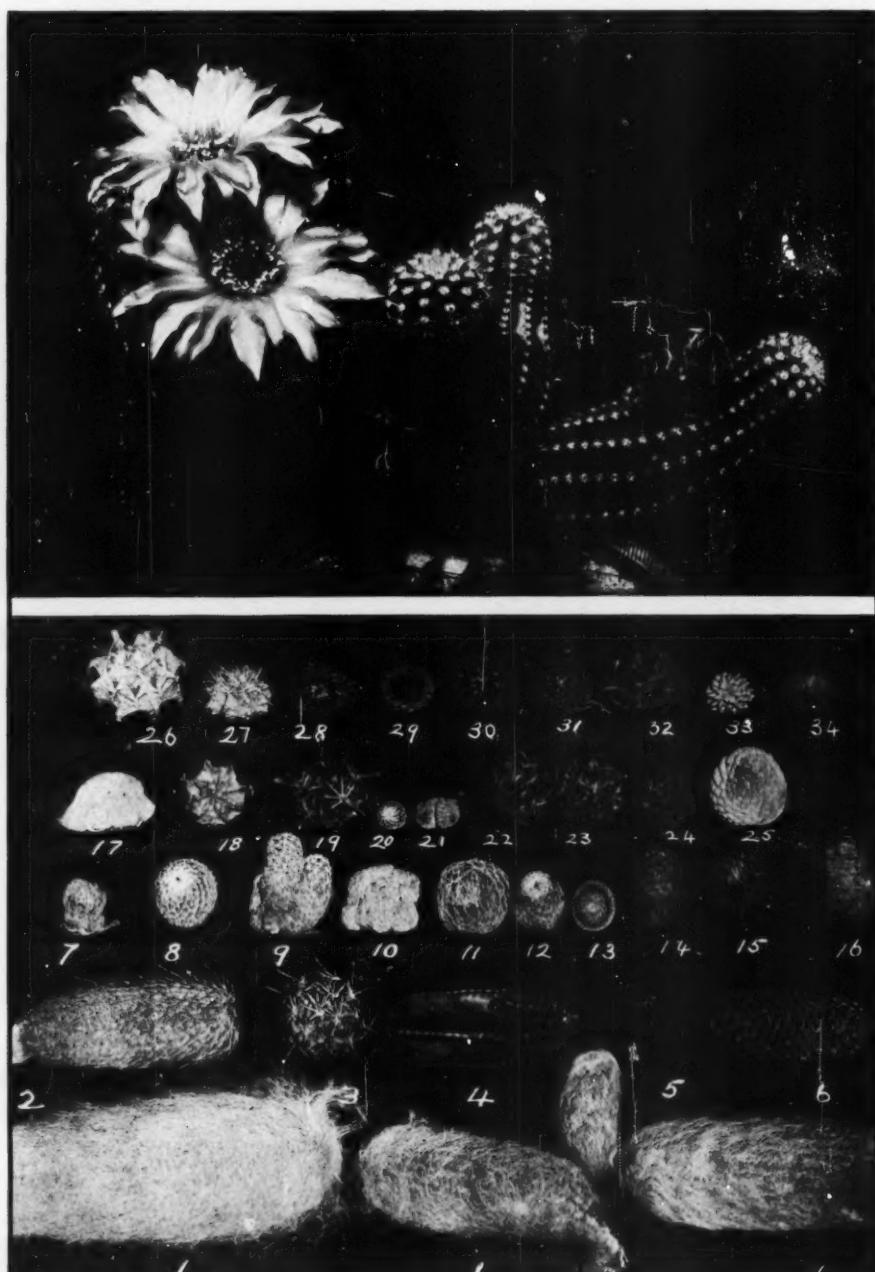
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NEW LISTS

Gates Famous Cactus Gardens, Anaheim, California. Autumn list of Cactus and other Succulent plants. 6 pages mimeographed. An excellent feature of this listing is that the sizes of the plants are shown in inches; eventually all dealers will follow this long needed demand of the buyer. It is interesting to note the large number of grafted plants which assures longer life of the rarer species.

R. W. Poindexter Nursery, 1000 N. Temple Street, Compton Calif. Thirteen page mimeographed list of cactus and succulents. Rooted and unrooted cuttings, grafted plants and seedlings are listed with the size of each plant. Emphasis is made to encourage grafting by listing offsets and grafting stock. This list is free if you mention the Journal.



ABOVE : The Chamaecereus hybrid originated and shown by E. C. Hummel at last years show has flowered, as have many others. The photograph shows one type which has a decidedly ruffled beautiful flower. Types vary from smaller flowers, ruffled and much more double to larger flowers with broader petals. These stood last winters cold with no ill effects. The hybrid is *Chamaecereus silvestrii x Echinopsis areo*.
BELOW: CACTUS NATIVE TO MEXICO, arranged by C. W. Armstrong, Vancouver, B. C. 1. *Cephalocereus senilis* 2. *C. hoppenstedtii* 3. *Ferocactus crassibamatus* 4. *Pachycereus marginatus* 5. *Neomammillaria*

pfeifferi 6. *Coryphantha erecta* 7. *Neomammillaria bocasana*, 8. *N. parkinsonii*, 9. *N. spachiana*, 10. *N. plumosa*, 11. *N. mystax*, 12. *N. elegans*, 13. *N. pseudoperbella*, 14. *Neolloydia beguinii*, 15. *Echinofossulocactus heteracanthus*, 16. *Echinocereus longisetus*, 17. *Neomammillaria babiana*, 18. *Astrophytum capricorne* 19. *Ferocactus latispinus*, 20. *Solisia pectinata*, 21. *Pelecyphora aselliformis*, 22. *Echinofossulocactus crispatus*, 23. *Coryphantha bumamma* 24. *C. exsudans*, 25. *Strombocactus disciformis*, 26. *Astrophytum ornatum*, 27. *Ferocactus glaucescens*, 28. *Echinomastus vaupelianus*, 29. *Neomammillaria rhodantha*, 30. *N. sulphurea*, 31. *N. nigra*, 32. *Echinofossulocactus dichroacanthus*, 33. *Ariocarpus kotschobeyanus*, 34. *Echinomastus macdowellii*.



FIG. 1. Inflorescence of *Talinum guadalupense* Dudley, app. x 0.4
 FIG. 2. Single blossom of *Talinum guadalupense* Dudley, app. x 1.2

Succulent Illustrations

By ERIC WALTHER, Botanist Golden Gate Park, San Francisco

Talinum guadalupense

On a previous occasion we submitted pictures of two mysterious succulents to our readers in the hope that some hint as to their identity might be forthcoming. They were, respectively, *Pachyphytum brevifolium* Rose, and the subject treated here today. At that date,* we knew nothing about their flowers, and as to their origin, all we knew of the plant here pictured in flower was that it was supposed to have been brought from Guadalupe Island. On this faint clew we ventured to consider this identical with *Talinum guadalupense* Dudley, a guess now vindicated by the flowers produced by

the skillful cultivation of Mr. Victor Reiter, Jr. The plant in question had reached a height of nearly 2 feet, made two thick, sausage-like branches, each with a terminal tuft of leaves and, now, with a flowering scape, one of which we illustrate here. Each scape bore about 12 flowers, which have 5-6 petals, that are rose-colored, soft-textured, delicately frilled and over $\frac{1}{2}$ inch long. Except for the deciduous sepals these flowers greatly resemble those of the well-known *Calandrinia discolor* Schrad. from Chile.

Unfortunately the plant is not happy in cultivation here, our winters being too damp and chilly, and it is hoped that some of our Southern friends will be more successful with this.

(March 1932; Cactus Journal Vol. 3, No. 9, pages 152-153.)

ECOLOGICAL REPORT

Editor:

I have read with much interest Mr. Marshall's reports of the West Indian Ecological Expedition. I was amazed to read of orchids growing on cacti and on telegraph wires.

During the past three years I have collected cacti and orchids in Jamaica, Trinidad, Haiti, Grenada, the Canal Zone, Martinique and Venezuela, and inasmuch as I have never observed the aforementioned phenomena, I have however seen various plants, mostly I believe, members of the Bromeliaceae, leading epiphytic lives, and occupying the situations described by Mr. Marshall. Is it possible that Mr. Marshall has confused the orchid family with the Bromelia family?

If Mr. Marshall's observations are correct it really opens up a very interesting field for experimentation, we probably could grow orchids in the greenhouses, by stretching wire the length of the house and do away with pots and benches. What could be lovelier than having a columnar type of cacti with an orchid plant growing on it. Maybe one would be fortunate enough to have both plants flower at once.

I am anxiously awaiting for the reports of the West Indian Ecological Expedition.

IRVING B. LEVI

Throughout the Islands of the West Indies which I visited I found a small Bromeliad common in the drier portions on telegraph wires and trees. At Monte Cristi, Dominican Republic, I found a small Orchid (*Ancidium intermedium*) growing on wires with the Bromeliad.

In all the dry district about Monte Cristi and extending 120 km. east nearly to Santiago this same *Ancidium intermedium* is common on *Cephalocereus polygonus* and *Lemaireocereus hystrix*.

Another and larger orchid *Braugntonia dominguensis* is also very commonly found on the larger plants of *Cereus* and even on large plants of *Consolea moniliformis* and *C. falcata*.

I photographed *B. dominguensis* on a plant of *Harrisia nashii* and this will be published at a later date in connection with a report of the findings on the trip. WM. TAYLOR MARSHALL

Second edition *Book of Cacti for the Amateur Collector* now ready, 230 illustrations, price \$1.00 delivered anywhere or free with \$5.00 order of cacti. Those now having one write for price list and how to get your money back regardless of where you bought the book.

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1223 So. Alamo Street
San Antonio, Texas

PEYOTE OR LOPHOPHORA WILLIAMSII

An unusually interesting work is being conducted by Richard Evans Schultes for the Botanical Museum of Harvard University, Cambridge, Massachusetts. Mr. Schultes is investigating the plant chemically and pharmacologically in the laboratory and has investigated it from the point of view of economic botany and ethnology in the field. Six weeks were spent among tribes using the religious narcotic and 309 references to Peyote have been received.

While preparing a monographic thesis on this subject Mr. Schultes contributed an article for the Harvard Botanical Leaflets, Vol. IV, No. 8, pgs. 129-152.

This interesting report consists of:

1. Economic importance of Peyote.
2. Peyote and its use.
3. Plants and the Peyote ceremony.

Two illustrations.

Bibliography.

We are surprised to learn that the Peyote cult numbered 13,300 members in 1922 and was given a charter by the state of Oklahoma. 30 Indian tribes make up this rapidly increasing religious organization.

Most of the supply of these "mescal buttons" comes from Texas and the town of Pyote takes its name from the trade of these plants. Some states have restricted the sale of this narcotic although under Federal regulation *Lophophora williamsii* (the scientific name for Peyote) is not considered as such.

The consumption must be enormous since Mr. Schultes states that the average consumption at the weekly meetings is at least four buttons and some consume thirty in a single meeting.

It is eaten in the dried form because of the sense of ease and well-being that it induces and, in some cases, because of the psychological effects (the chief of which is the kaleidoscopic play of richly colored visions) often experienced by those who indulge in its use.

QUESTIONS AND ANSWERS

I have a small collection of cacti and succulents which includes a couple of *Epiphyllums*. All the other varieties (some forty or fifty) are thriving and growing well. But the *Epiphyllums* are my despair, so I come to you for assistance or any information you may care to give on their care and culture. My plants are not grafted but why will they not grow on their own roots? Strangely enough, I have seen splendid specimens blooming, and contrary to all the rules of good cactus culture, are growing in heavy soil with no drainage and are growing in an old

metal bucket or lard pail. It is exasperating to say the least.

The leaves (stems) of my plants droop periodically and usually one wilts and drops off as fast as a new one grows. Do you recommend grafting and, if so, to what particular stock? Of course the rigorous Canadian winter is no time of year to graft, and it is quite a chore to bring them through one of our winters, especially since I have no greenhouse facilities.

One reads a great deal in your JOURNAL and elsewhere, not to water the plants during the winter or dormant period. I find that if I do not water my plants during the winter, they soon lose ground. Will you advise me on this point, please? Also, what do you consider the ideal soil for cactus culture? What do you recommend as a plant aid for *Epiphyllums*?

Cactus collecting in this part of the country is the exception and not the rule, you know. But I find it most interesting, especially when one takes a sickly plant, cuts away the diseased part and re-grows it into a healthy specimen. The CACTUS AND SUCCULENT JOURNAL has been to me a fountain of knowledge and of great assistance.

With best wishes for its continued success.

D. L. REDMOND, Canada.

After carefully reading your letter, especially that portion relating to your *Epiphyllums*, I can only say this is rather the usual experience with *Phyllo* growers rather than an exceptional one. If the rot starts at the top, cut off the stem about an inch above the surface of the soil. This usually results in two new stems breaking out from the stub of the old stem. If the decay starts at the bottom you might just as well cut it off close to the top of the soil, using the good portion of the stem for new propagation. Dust the cuts with powdered charcoal or sulphur to prevent infection.

As to the water, I would not withhold water entirely. These plants, although epiphytic, are now growing on a false root system and demand some moisture. If atmospheric condition in the room where the plants are kept in the dormant stage does not supply this, you must supply it through this false root system. Merely keep the soil damp during the non-blooming season and water very freely as soon as the buds commence to form and continue until they have ceased to flower.

The proper soil mixture, as the experts here mix it, is one that does not require any additional "plant-aid," and at the same time is conductive to the retention of sufficient moisture

for a long period of time. This mixture is as follows: One part each (equal parts) of bone meal, good rich leaf mold, sharp sand, vegetable manure and peat moss. You can readily see that everything necessary for good growth is provided.

JOHN W. BANKS.

Cactus Display in the Northwest

Editor Cactus Journal:

While it is still fresh in my mind I must write you about our exhibit at a recent flower show staged by Anna Roosevelt Boettiger and her Homemakers staff of the Post Intelligencer, July 23-24 in Seattle, Wash. A week before the show they called me and asked me if I would display a few cactus plants as a special feature so with the aid of my friend, Mrs. Stanford Lewis we made up a very attractive arrangement of about 100 plants. The show itself was held down town in a large empty store. The far end of the room was fixed up like a house front with window boxes filled with flowers, a yard with pool, garden and lawn, all enclosed with a white picket fence and attractive gate. Punch was served in here and there was comfortable garden furniture everywhere. Paul Immel, a local water color artist hung the walls with his floral pictures and the whole setting was most beautiful for a floral display.

Mrs. Lewis and I selected our plants in such a way that there were no duplicates and I am sending you some of the cards we attached to our boxes. We tried to make it educational as well as interesting and we received many compliments, not only in our method of displaying our plants, but also as to the health, beauty and cleanliness of our plants. One or the other of us was in attendance nearly all the time to answer questions. We came through the show with only one or two casualties in spite of the constant stream of people in front of our table.

Mrs. Lewis has her plants arranged in red boxes and mine in antiqued white boxes measuring over all $22\frac{1}{2}$ in. x 4 in. high x 5 in. wide. This takes care of small plants and my boxes slide into glass shelves in my porch windows or fit into a large bay window 12 ft. x 3 ft. depending on the amount of sun I want to give a certain box. I also have two larger size boxes, one 6 in. x 6 in. x $22\frac{1}{2}$ in. and the others 12 in. x 12 in. x 12 in. all made of $\frac{1}{2}$ in. cedar. These fit into the large bay window in such a way that the tops of the boxes are even. I have species arranged in boxes that require the same soil and water conditions or that flower at the same time. It is certainly the easiest way of caring for a maximum

of plants in a small space and they can be moved about or taken out doors with so much less dirt or damage to plants than when planted in clay pots.

At some future time I shall send you pictures of my set up and also a diary of the flowering period for my plants.

I wonder if any one has experimented with "Hormodin" for rooting cuttings. I am going to experiment with both epiphytes and zerophytes to see what luck I have.

I am most anxious to see the pronouncing glossary resumed. I think it is one of the finest features you have carried. The JOURNAL is splendid and certainly makes us feel closer to the "cactus world."

MRS. HARRY H. LEWIS

EDITOR'S NOTE: The following quotations from display cards are printed in hopes that they may furnish an idea for other exhibits. In exhibiting to the general public these human interest notes are invaluable.

Very desirable small growing South American *Echinocactus*, recommended because of their beautiful flowers. 1. *Echinopsis polyancistra*, 2. *Notocactus basbergii* 3. *Rebutia miniscula* (very fine), 4. *Parodia aureispina*, 5. *Gymnocalycium queblianum*, 6. *Notocactus scopula*, 7. *Echinocactus setispinus* (Texas).

Especially fine group of early blooming *Neomammillarias* native of Mexico. 1. *Neo. elongata tenuispina*, 2. *Neo. plumosa*, 3. *Neo. microbella*, 4. *Neo. habniana*, 5. *Neo. compressa*, 6. *Neo. pringlei*.

1. *Opuntia microdasys*, 2. *Opuntia brasiliensis*, 3. *Opuntia erinacea*. (The Grizzly Bear) from the desert Queen Mine in California. Forms mats 25 feet square but seldom over 2 feet high. 4. *Opuntia leptocaulis*, 5. Native *Opuntia*. The tribe *Opuntia* comprises over 650 species both flat and round jointed. The least desirable tribe for house culture.

1. *Cephalocereus dybowskii*, native of Brazil, does not bloom in cultivation. 2. *Lobivia aurea*, Native of South American mountains. Likes rich soil, plenty of sun flowers when small. 3. *Chamaecereus crassicaulis*, abnormal form of the Peanut Cactus. 4. *Notocactus ottonis*, dwarf cactus from South America, does not exceed two inches in diameter. Bright yellow flowers growing, large pink blossoms. 6. *Dolichothele longi-2½ inches long*. 5. *Neopoteria nigricans*, rare, slow mamma, native of Texas, large yellow flowers. 7. *Gymnocalycium mihanovichii*, native of South America, flowers when only an inch in diameter. 8. *Neomammillaria wildii* crest, abnormal form best grafted on *Cereus* stock, blooms readily. 9. *Neomammillaria gracilis* crest, abnormal form of the Thimble Cactus.

Abnormal forms called crests grafted on fast growing stock. 1. *Echinocereus* species, 2. *Neomammillaria paupera* 3. *Notocactus ottonis*, 4. *Neomammillaria wildii*, 5. *Notocactus scopula*, 6. *Nyctocereus serpentinus*.

Easily flowered *Neomammillarias* native of Mexico. 1. *Neo. moelleriana*, 2. *Neo. rhodantha cysacantha*, 3. *Neo. bocasana*, 4. *Neo. elegans*, 5. *Neo. longicoma*, 6. *Neo. kewensis*. Very desirable as they remain small.

Echinocactus rectispinus, native of Mexico very slow growing, likes loose gravelly soil, spines attain a length of ten inches in natural habitat.

Echinocactus grusonii, native of Mexico, the famous Golden Ball Cactus, attains two feet in diameter and grows more beautiful with age.

Astrophytum ornatum, native of Mexico, very slow growing and while there is no way to tell the age of a cactus, it is estimated that this plant is from thirty-five to fifty years old.

Astrophytum myriostigma (Bishop's Cap), native of Mexico, plant itself does not have spines but the flower bud is encased in a spiny covering, mature specimens bloom easily with yellow blossoms from the top of the plant.

Aporocactus flagelliformis (the Rat-tail Cactus), native of Mexico and Central America, grafted on fast growing *Opuntia* stock which forms a large plant in a few months, flowers in April with a flower similar to the Christmas Cactus.

Chamaecereus silvestrii (Peanut Cactus), also grafted on fast growing *opuntia* stock, blooms readily with quite large bright red flowers, native of Argentina.

BOOK REVIEW

JAPANESE FLOWER ARRANGEMENT FOR MODERN HOMES, by Margaret Preininger, published by Little, Brown and Company, Boston, Massachusetts. Price \$5.00.

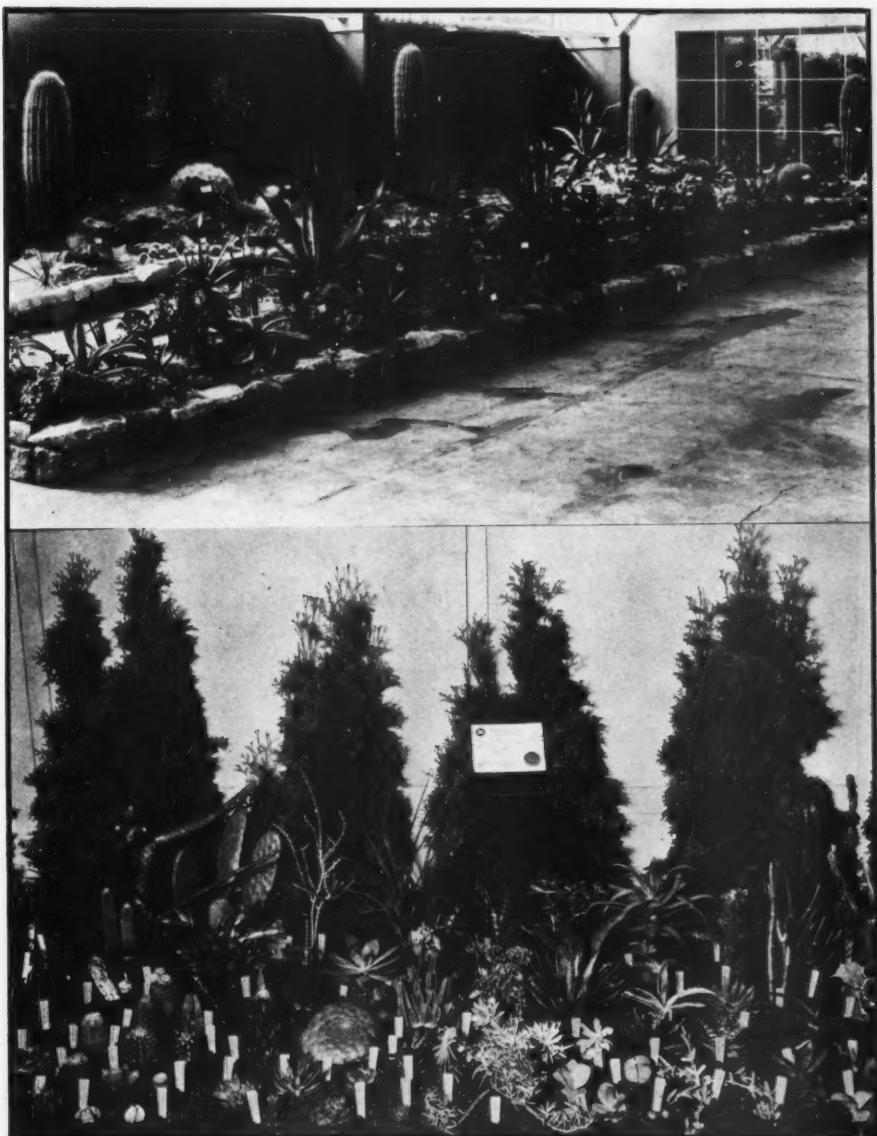
This is one of the most beautiful books we have had the pleasure of reviewing. Printed on white Inomachi Vellum, a Japanese paper, 10 x 12 inches, and bound in white parchment, the book itself, exclusive of contents, is perfect from an artistic standpoint.

Miss Preininger has presented her theory that "beauty is common to all people" in a beautifully worded and thoroughly readable style. She has explained dozens of practical arrangements for flowers all of us know, and has illustrated her principles by means of simple and easily followed charts. There are direct applications to Succulents in which the author has used *Cotyledon orbiculata* and two *Epiphyllums*. A study of this book will suggest ways of using cacti and the other succulents in flower arrangement.

However, the most outstanding feature of *Japanese Flower Arrangement* is its photography, and the richness of the lithographic reproductions have never been equaled in any process. There are twenty-four line illustrations and more than fifty photographic reproductions. Page after page makes the reader pause with delight, and the sheer beauty of these full-page photographs is sufficient in itself to justify the book.

GRACE ALLEN

Cactus Journals unbound. From Dec. 1931 to 1935, please make a cash offer. Mrs. M. L. Conradine, 1950 10th St., Riverside, Calif.

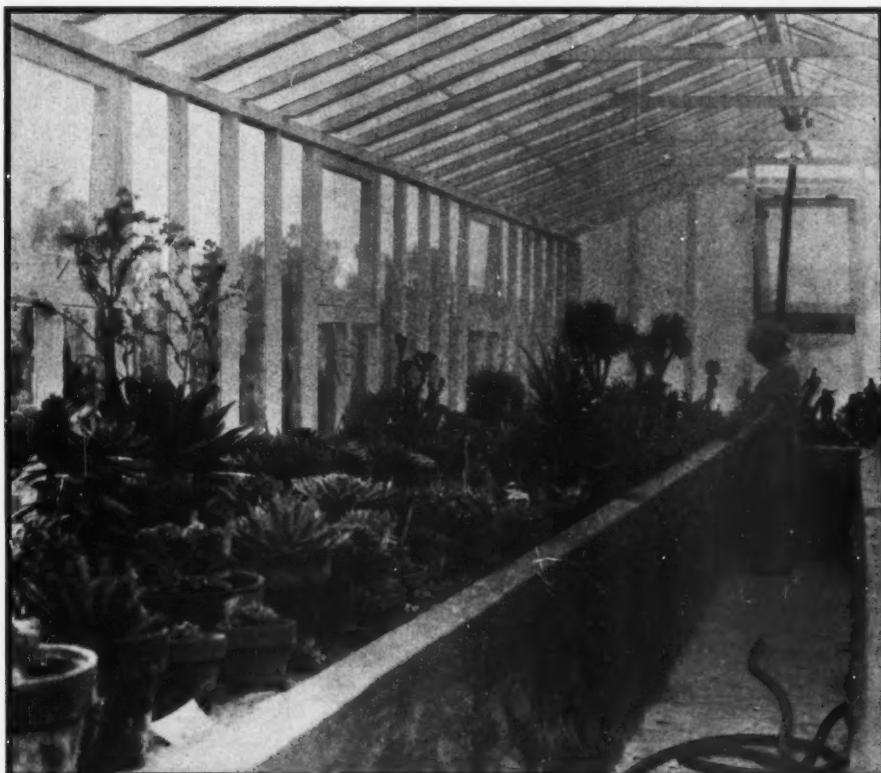


ABOVE: Exhibit of the Chicago Cactus Society, see page 34.

BETWEEN: Mrs. Gunnison's first prize collection of succulent plants at International Flower Show, New York.



Bryophyllum flowering in Michigan for Mrs. William J. Fickinger



A partial view of G. A. Frick's hot-house.

A California Greenhouse

After ten years trial I am convinced that a greenhouse so constructed that the pots can be plunged in soil is the best possibly way to raise either cacti or succulents. The advantages of pots partially buried in soil is obvious since the bottom of the pots can never dry out, and one has the advantage of watering from below instead of from above.

I have four hot houses, two have wood benches and the other two are built upon raised cobble stone walls between which soil is filled in to within two inches of the top of the wall; it is in the latter two that the finest and healthiest plants are produced.

Xerophytes grown in hot houses, on wooden benches are always sickly appearing plants, and it was to overcome this that gave birth to this idea of construction, and the number of houses built in this same fashion in Southern California is ample proof of the merits and popularity of this method.

For the busy collector, this sort of house is a labor saver since it is necessary to look at the root condition of the plants but once a year as those roots that have become pot-bound will continue right on through the pot and continue their growth in the soil below without interruption. No greenhouse can be a good one without lots of ventilation. The importance of this can not be stressed too much for during the summer months all ventilators should be left open continuously. It is under these growing conditions that the plants acquire vigor, and hot-house plants certainly need it.

G. A. FRICK.

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